CLAIMS

sub A1

1. A drug composition characterized by including a drug carrier and a lecithin-modified superoxide dismutase represented by the following general formula (I) and having following characteristics (a) to (d):

$$SOD' \ (Q - B)_m \qquad (I)$$

(characterized in that SOD' is a residue of superoxide dismutase: Q is a chemical crosslinking; B is a residue without a hydrogen atom of a hydroxyl group of lysolecithin having the hydroxyl group at the 2-position of glycerol; m is an average number of bonds of lysolecithin to one molecule of superoxide dismutase which is a positive number of 1 or more);

(a) property: when water for injection is added to one which lyophilized the drug composition, the one is dissolved with no insoluble foreign substances;

(b) stability: when a superoxide dismutase activity per unit weight immediately after lyophilizing the drug composition is set as 100, relative values of the activity at the time points after the lyophilized drug composition is stored at 8°C for 12 months, 25°C for 12 months or 40°C for 6 months are all 97% or more;

(c) peaks of analogues in gel filtration chromatography: when the lyophilized drug composition is re-dissolved and submitted to gel filtration chromatography and absorbance of the eluates is measured at 220 nm, no substantial difference is observed between a peak shape of lecithin-modified

superoxide dismutase on a detection chart of the absorbance and a peak shape of lecithin-modified superoxide dismutase before lyophilization; and

(d) peaks of analogues by reversed phase chromatography: when the lyophilized composition was re-dissolved at the time points after it is stored at 8°C for 12 months, 25°C for 12 months or 40°C for 6 months and submitted to reversed phase chromatography and absorbance of the eluates is measured at 220 nm and 270 nm, each amount of detected analogues is not substantially different from that immediately after lyophilized.

2. The drug composition according to claim 1 characterized by maintaining all properties according to claim 1 at any time points after the lyophilized composition is stored at 8°C for 36 months, 25°C for 36 months or 40°C for 6 months.

3. The drug composition according to claim 1 or 2 characterized in that the analogues are substances generated by cleavage of a lecithin part of lecithin-modified superoxide dismutase.

4. The drug composition according to any of claims 1 to 3, characterized in that a fatty acid content in the drug composition is 0.13-0.15 μmol/mg protein.

5. The drug composition according to any of claims 1 to 4 characterized in that a drug carrier is sucrose.

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6. The drug composition according to any of claims 1 to 5 characterized in that Q is $-C(O)-(CH_2)_n-C(O)-$ (wherein, n is an integer of 2 or more).

7. The drug composition according to any of claims 1 to 6 characterized in that SOD' is a residue of human superoxide dismutase.

8. The drug composition according to any of claims 1 to 7 characterized in that SOD' is a residue of a modified form of superoxide dismutase in which an amino acid in 111-position of an amino acid sequence of human superoxide dismutase is converted into S-(2-hydroxyethylthio) cysteine.

9. The drug composition according to claim 7 or 8 characterized in that the superoxide dismutase is the one containing copper and zinc at the active center.

10. The drug composition according to any of claims 6 to 9 characterized in that n is an integer of 2 to 10.

11. The drug composition according to any of claims 1 to 10 characterized in that m is a positive number of 1 to 12.

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12. The drug composition according to any of claims 5 to 11 characterized in that sucrose is the one treated with activated charcoal.

13. The drug composition according to any of claims 1 to 12 characterized in that it is a form of a lyophilized drug composition.

14. The drug composition according to any of claims 5 to 13 characterized in that a weight ratio of lecithinized superoxide dismutase to sucrose is 0.4/100-60/100.

15. A treatment agent for diseases comprising the drug composition according to any of claims 1 to 14.

16. The treatment agent according to claim 15 characterized in that the disease is a motor neuron disease or ulcerative gastrointestinal injury.

17. An agent having sucrose as an active ingredient for inhibiting a reduction of superoxide dismutase activity or for controlling appearances of peaks of analogues when analyzing the superoxide dismutase by column chromatography by making sucrose coexist with lecithin-modified superoxide dismutase represented by the following general formula (I):

$$SOD' \ (Q - B)_m \qquad (I)$$

Sub A. cont'd

(characterized in that SOD' is a residue of the superoxide dismutase: Q is a chemical crosslinking; B is a residue without a hydrogen atom of a hydroxyl group of lysolecithin having the hydroxyl group at the 2-position of glycerol; m is the average number of bonds of lysolecithin to one molecule of superoxide dismutase which is a positive number of 1 or more).

18. A method for inhibiting a reduction of superoxide dismutase activity or for controlling appearances of peaks of analogues when analyzing the superoxide dismutase by column chromatography by making sucrose coexist with lecithin-modified superoxide dismutase represented by the following general formula (I):

$$SOD' \ (Q - B)_m \qquad (I)$$

(characterized in that SOD' is a residue of the superoxide dismutase: Q is a chemical crosslinking; B is a residue without a hydrogen atom of a hydroxyl group of lysolecithin having the hydroxyl group at the 2-position of glycerol; m is the average number of bonds of lysolecithin to one molecule of superoxide dismutase which is a positive number of 1 or more).